



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,798	03/04/2004	Ho-seok Choi	1572.1260	5225
21171	7590	06/29/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			NGUYEN, SANG H	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/791,798

Applicant(s)

CHOI ET AL.

Examiner

Sang Nguyen

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-15,17,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3-6,16,18 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

Application's response to amendment filed on 04/11/05 has been entered. It is noted that the application contains claims 1-21 by the amendment filed on 4/11/05.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-2, 7-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art of Present Invention (Figure 1) in view of Francis et al (FR 2669180).**

**Regarding claims 1 and 9;** PAPI discloses a panel inspection apparatus for inspecting a display panel (103 of figure 1), comprising:

- a panel supporting member (111 of figure 1) for supporting the display panel (103 of figure 1); and
- a plurality of cameras (104, 105, 105 of figure 1), being spaced from the panel supporting member (130 of figure 1), for providing photograph the panel supported by the panel supporting member (111 of figure 1). See figure 1.

PAPI discloses all of features claimed invention except for a rotatable camera support to rotatably support at least one of the plurality of cameras and a camera support member for supporting the rotatable camera above the panel supporting

member. However, Francis et al teaches that it is known in the art to provide a rotatable camera support (6,7,8 of figure 2) to rotatably support at least one of the plurality of cameras (9, 10 of figure 2 or 9, 10, 19 of figure 5) and a camera support member (6, 7, 8 of figure 2) for supporting the rotatable camera (9, 10 of figure 2) above the panel supporting member (figure 2). See figures 1-5.

Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to combine a panel inspection apparatus for inspecting a display panel of PAPI with a rotatable camera support to rotatably support at least one of the plurality of cameras and a camera support member for supporting the rotatable camera above the panel supporting member as taught by Francis et al for the purpose of inspecting accurately entire the object with high speed.

**Regarding claims 2, 13-14, and 17;** Prior Art of Present Invention's device teaches at figure 1 with a first camera (105 of figure 1) for providing to face the LCD panel (103 of figure 1) from a direction perpendicular to the panel, and a second camera (107 of figure 1) for providing to face the LCD panel (103 of figure 1) at an acute angle (figure 1) to the LCD panel (103 of figure 1) and being spaced from the first camera (105 of figure 1), wherein the first camera (105 of figure 1) is installed within a predetermined distance of the second camera (107 of figure 1).

**Regarding claim 7;** PAPI discloses all of features of claimed invention as indicate claim 1, except for at least one additional rotatable camera support. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a panel inspection apparatus of PAPI with at least one additional rotatable

camera support, since it has been held that broadly providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. In re Venner, 120 USPQ 192.

**Regarding claim 8;** Figure 1 of PAPI discloses all of features of claimed invention as indicated in claim 1, except for the second camera support by the rotatable camera support is provided so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated. However, Francis et al teaches about the second camera support by the rotatable camera support is provided so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated (figure 2 and 5-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel inspection apparatus of PAPI with the second camera support by the rotatable camera support is provided so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated as taught by Francis et al for the purpose of inspecting components assembled on electronic card.

**Regarding claim 10;** Kubota et al discloses all of features of claimed invention except for the camera support member supports the rotatable camera support at a predetermined distance away from the panel supporting member. However, Francis et al teaches that it is known in the art to provide the camera support member (6 of figure 2) supports the rotatable camera support (7, 8 of figure 2) at a predetermined distance away from the panel supporting member (figure 2 and 5-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel

inspection apparatus of Kubota et al with the camera support member supports the rotatable camera support a predetermined distance away from the panel supporting member as taught by Francis et al for the purpose of inspecting components assembled on electronic card.

**Regarding claim 11;** Prior Art of Present Invention teaches that it is known in the art to provide the size of the display panel is not larger than the camera scope of each of the plurality of cameras (figure 1 and pages 1-2).

**Regarding claim 12;** Prior Art of Present Invention teaches that the panel supporting member (111 of figure 1) is shape a table (figure 1).

**Regarding claim 15;** PAPI discloses an axis line (figure 1 is perpendicular to the LCD panel [103]) of the first camera (105 of figure 1) and an axis line (figure 1) are separated by an angle (figure 1) and except for the angle is 30 degrees. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel inspection apparatus of Kubota et al with the angle is 30 degrees, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA).

**Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art of Present Invention (Figure 1) in view of Kishimoto et al (US. Patent No. 4,894,551).**

**Regarding claim 19;** PAPI discloses a panel inspection apparatus for inspecting a display panel (103 of figure 1), comprising:

- a panel supporting member (111 of figure 1) for supporting the display panel (103 of figure 1); and
- a plurality of cameras (104, 105, 105 of figure 1), being spaced from the panel supporting member (130 of figure 1), for providing photograph the panel supported by the panel supporting member (111 of figure 1) and a camera support member (130 of figure 1) for supporting the plurality of cameras (105, 107 of figure 1), wherein a first camera (105 of figure 1) and a second camera (107 of figure 1). See figure 1.

PAPI discloses all of features claimed invention except for a plurality of rotatable camera supports for providing to rotatably support and rotate the at least one of the plurality of first cameras and at least one of the plurality of the second cameras.

However, Kishimoto et al teaches that it is known in the art to provide a plurality of rotatable camera supports (308-1, 308-2 of figures 15-16) for providing to rotatably support (col.5 lines 37-55) and rotate the at least one of the plurality of first cameras (309-1 of figures 15-16) and at least one of the plurality of the second cameras (309-2 of figures 15-16 and see abstract). See figures 1-29.

Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to combine a panel inspection apparatus for inspecting a display panel of PAPI with a plurality of rotatable camera supports for providing to rotatably support and rotate the at least one of the plurality of first cameras and at least one of the plurality of the second cameras as taught by Kishimoto et al for the purpose

of inspecting better or accurately viewing to display panel to high resolution with high speed.

**Regarding claim 20;** PAPI discloses the at least one of the plurality of first cameras has an optical axis concurrent with an axis of rotation of rotatable support (figure 1).

***Allowable Subject Matter***

**Claims 3-6, 16, 18, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

The prior art of record, taken alone or in combination, fails discloses or render obvious a panel inspection apparatus comprising all the specific elements with the specific combination including of a driving part of rotate the second camera, a first bracket providing between the driving part and the first camera to support the first camera, and a second bracket extending from the driving part to the second camera to support the second camera, wherein second bracket supports and enables the second camera to rotate around an axis line of the first camera, wherein the driving part further comprises a driving motor with a rotational axis aligned to the axis line of the first camera, and wherein the second bracket is combined to the first bracket at an acute angle toward the panel supporting member in set forth limitation of claims 3-6 and 18.

The prior art of record, taken alone or in combination, fails discloses or render obvious a panel inspection apparatus comprising all the specific elements with the specific combination including of the at least one of the plurality of second cameras



rotates around the at least one of the plurality of first cameras, and the at least one of the plurality of second cameras has an optical axis at an acute angle relative to that of the at least one of the plurality of first camera in set forth limitation of claim 21.

### **Response to Arguments**

Applicant's arguments, see pages 1-5, filed 4/11/05, with respect to the rejection(s) of claim(s) 1-2, 7-15, 17, and 19-21 under 102 (b) and 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Prior Art of Present Invention (Figure 1) in view of Francis (FR 2669180) and Kishimoto et al (US. Patent No. 4,894,551).

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fridge (5638461) discloses stereoscopic electro-optical system for inspecting object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax

Art Unit: 2877

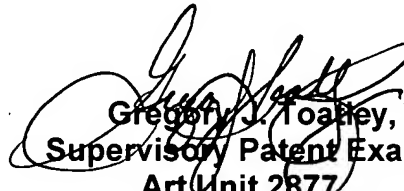
phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SN

Sang Nguyen/ SN

June 26, 2005

  
Gregory J. Tooley, Jr.  
Supervisory Patent Examiner  
Art Unit 2877  
Technology Center 2800  
27 JUN 05